

# **PUBLIC SECTOR PERFORMANCE MEASUREMENT AND BUDGET ALLOCATION: AN INDONESIAN EXPERIMENT**

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## **Abstract**

This experiment examines how decision makers, such as members of the House of Representatives in Indonesia, use performance measures of public sector organizations in making budget allocation plans. Similar experiments in the private sector have conflicting findings in regard to decision makers' focus on either common or unique measures. Using both types of measures could raise accountability of decision makers such as members of the House especially in public sector organizations (Ndlovu, 2010). Such accountability improvement has not been seen as important in the Indonesia public sector (Sopanah, 2003).

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The subjects of the experiment were 70 3rd year undergraduate accounting students, who had already taken a public sector accounting class. The subjects played the role of members of the local House of Representatives. They were asked to evaluate the performance of two fictional local government hospitals, and decide on the budget allocation for the coming year. Before the experiments were conducted, half of the participants were given instruction in the use of common and unique performance measures in hospitals. This group was called the knowledgeable group; those who did not have the instruction were called the unknowledgeable group. In the experiment itself both groups were given performance reports on the two hospitals: one containing budget and actual revenue and expense totals, the other containing both the financial figures (common to both reports) and also three non-financial hospital-specific measures (unique measures for the second case). T-tests of differences between means showed that the knowledgeable group tended to use the unique information in evaluating performance and in deciding on the budget allocation for the next year, whereas the unknowledgeable group relied on only the common measures. These results are consistent with those of Lipe and Salterio (2000) and Dilla and Steinbart (2005) in private sector settings.

**Keywords:** *Accountability, Public sector, Performance measurement, Budget allocation plan, Knowledgeable and unknowledgeable, Decision makers*

## **Introduction**

Organizational performance measurement has become a major emphasis for assessing the success of an organization. Almost all organizations in both private and non-profit/public sectors carry out performance measurement to assess whether the organization has been running on the right track, or its performance needs to be improved. Not-for-profit organizations have been urged to focus on better performance measurement, particularly to aid management decision making and to increase external credibility (Epstein and Buhovac, 2009). Goh (2012) claims that problems with implementing performance management and measurement in the public sector environment is due to a lack of focus on the process of managing the implementation of performance measurement. Performance measurements are used to evaluate past results in order to set the next year's budget. Many performance measurements previously were done in a simple way, that is, comparing between the financial budget and its realization. Over time this traditional paradigm has been replaced in the private sector. An emerging paradigm has developed, with more comprehensive performance measurement (Ndlovu, 2010).

Public sector organizations in Indonesia use the budget as a means of performance measurement. Budgeted figures are compared to actual realization in the current year in order to assess whether the organization has run well (Government Regulation No. 71/2010). Measurements are carried out carefully by members of the local House of Representatives<sup>4</sup> as stakeholders who represent the people. Based on the measurements, the members of the House will make decisions and approve budget allocations in every

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local government organization. For example, a local government hospital must run their operational activities according to the budget they have been given by the local House of Representatives.

The budget allocation process itself involves discussion on the previous year's financial and non-financial reports, containing, for example, accounting and operational information respectively. Members of the House will assess these reports and decide whether the organization has achieved excellent performance and operations. In order to be fair in judging the performance measures and making the budget allocation, they need to use all the information, as the results of the assessment will affect the budget allocation for the next year. If the budget is decreased, it could result in lower quality and quantity of service to the public. The House of Representatives will be able to play its role properly if the chair and members of committees evaluating local government organizations have the necessary qualifications to understand their rights, duties and responsibilities; that is, they need an appropriate education level and experience in politics and governance (Yudono, 2002). Although sometimes the complexity in public policy decision and the imperatives of accounting information in the public sector are often intertwined with political ideology and social preference (Covaleski and Dirsmith, 1991; Weiss, 1982)

With the proliferation of performance measures in new performance measurement frameworks, such as the balanced scorecard, researchers such as Lipe and Salterio (2000) became concerned that decision-makers would only use common measures (that is, measures that are used in many units and organizations) rather than measures that are unique to one unit or one type of organization. Lipe and Salterio (2000) found that users concentrate on common measures. Dilla and Steinbart (2005) showed that decision

makers who have an understanding of the BSC did use the two measures (common and unique), but with more emphasis on common measures. Handoko and Gudono (2006); Humphreys et al. (2008) found similar results. However, some studies show contrary findings. Roberts et al. (2004) suggested that by using the disaggregation-aggregation method for evaluating results can reduce common measure bias so that managers no longer ignore the performance measures that are unique (common measure bias). Disaggregation-aggregation method in the previous research means the subject will (1) evaluate performance separately for each of the performance measurement (2) mechanically aggregate the separate judgments using pre-assigned weights for each measures. Murni and Witono (2004) found that gender, age, education, political experience, experience in the House of Representatives, the ideology of their political party and the commission they belong to did not significantly affect the role of members of the Local House of Representatives in local financial control.

## **Concepts and Hypothesis Development**

Public sector management recognizes two management paradigms: the traditional management paradigm and the New Public Management paradigm. Both of these paradigms have a different view on performance measurement in the public sector (Mardiasmo, 2002; Ndlovu, 2010). The traditional view considers that the performance is seen by whether or not a proposed budget is spent. This view does not consider the output generated from the activity compared to expected performance. Performance measurement in the New Public Management paradigm is not only oriented to the input or the use of the budget alone. This new view of performance comprehensively takes into account the inputs, outputs, and outcomes. Value for money that consists of efficiency, effectiveness and economy is use to measure performance.

According to Hyndman (2008), there are two main reasons why public sector performance should be measured: firstly, to provide information to improve public sector management, and secondly, as a form of accountability. Thus public sector organizations use performance measurement mechanisms to assess whether the organization has been running on the right track or needs improvement. Information obtained from the assessment of performance will be beneficial for managers to make various decisions.

### **Budget Allocation Plan and Process**

The budget allocation plan is a part of Indonesian public sector budgeting. The budget allocation plan contains the amount of resources to be used in a program or organizational unit in the form of monetary figures. The allocation phase is an important step. If a unit is not allocated enough funds it may fail to achieve its intended purpose. Therefore decision makers need to know what they are doing when deciding on the budget allocation.

Decision makers use performance information from the current year to determine the budget allocations in the coming year. After evaluating the performance of a unit and making a judgment, they determine whether the budget allocation in the coming year will be increased, decreased or remain the same.

At the end of each year, performance of each unit is measured using either common or unique measures. Decision makers assess the overall performance based on those two types of measures and then to conclude whether a unit has good performance. The quality of performance will affect the policy of budget allocation. The concept of the relationship between performance assessment and budget allocation is found in the performance-based budget.

## **Common and Unique Measures**

There are two general types of measures in an organization, namely common and unique measures. Common measures are measures that are used for many units; some examples of common measures are return on sales, sales growth etc. Unique measures are developed in one particular unit, and only relate to that unit; for example, in a new store, unique measures could include store sales, market share relative to retail space, etc. The concept of common and unique measures developed in relation to the Balanced Scorecard (Slovic and Macphillamy, 1974; Kaplan and Norton, 1992). Each unit within an organization is advised to develop and use its own scorecard, choosing performance measures appropriate to each strategic unit.

Common measures are easier to use and recognise than unique measures. Although each unit may be different, if they use common measures that makes it easier for decision makers not only to assess the performance of each unit but also to make comparisons between units.

Unique measures are developed in accordance with the characteristics of a particular business unit strategy. Different units will have different unique measures. Unique measures show that business unit strategies vary between units.

## **Increased Accountability**

Performance measurement, a central element of new public management, increases public accountability (Greiling, 2005). As Indonesia has followed global trends in public sector reform, the demand for public sector organizations to become more accountable and transparent has increased. According to Mardiasmo (2002), the elements of good governance are openness (transparency), increased efficiency in all sectors (efficiency), clearer lines of responsibility, and fairness. The House of

Representatives argues that the elements of good governance are participation, rule of law, transparency, responsiveness, consensus of orientation, equity, efficiency and effectiveness, accountability and strategic vision (Mardiasmo, 2002). Nahapiet (1988) found that the relationship between accounting and healthcare organizations is complex and evolves over time, and that the development of new accountings can play an important role in enabling organizational change. Accounting-led initiatives are not merely techniques to control costs and promote efficiency: they can play a role in shaping medical practise, the provision of healthcare and the experience of the patient about health care (Chua and Preston, 1994)

### **Hypothesis development**

As long ago as 1974, Slovic and MacPhillamy (1974) carried out a series of five experiments on common and unique perspectives, in their case, on pairs of students with respect to potential college GPA. Both students had scores on one common dimension (e.g., English Skills) and one unique dimension (e.g., Quantitative Aptitude for Student A and Need to Achieve Success for Student B). The results indicated that dimensions were weighted more heavily in the comparison when they were common than when they were unique.

Based on that study, Lipe and Salterio (2000) conducted an experiment, using 58 first year MBA students, on the use of common and unique measures on a balanced scorecard. Their findings led to the conclusion that the decision makers use only common measures and do not pay attention to unique measures when making an assessment. Dilla and Steinbart (2005) replicated Lipe and Salterio's work using undergraduate students with previous class training. They concluded that decision



makers use both common and unique measures but give more emphasis to common measures.

Dilla and Steinbart (2005) mentioned that differences in the level of difficulty of the task and participants' knowledge resulted in the differences between their results and those of Lipe and Salterio (2000). Participants in Lipe and Salterio's study (2000) had little experience. Experienced decision makers who are more familiar with the tasks would be expected to behave differently. Knowledgeable decision makers, as found in Dilla and Steinbart (2005) and Bonner (1990), are subjects who understand the theory and the structure of the tasks. Knowledgeable decision makers would be expected to use both common and unique measures, and to be able to compare and evaluate the performance of each department. Advanced level accounting students can be used as surrogates for knowledgeable professionals in structured decision making contexts (Mortensen et al., 2012; Bonner, 1990).

Dilla and Steinbart (2005) argued that the decision makers who have acquired knowledge of performance measurement tools will make use of information from both common and unique measures to evaluate performance and the allocation of funds. Training to acquire knowledge of performance measurement tools can be obtained through training courses, books, seminars and scientific journals. The above findings and arguments lead to the first hypothesis as follows:

*H1: Decision makers who are knowledgeable about performance measurement will use the measurements which are both common and unique when conducting performance measurement.*

Yudono (2002) claimed that members of the local House of Representatives will be able to exercise their rights properly, carry out their tasks and duties effectively and

put their position proportionally in decision making if each member has sufficient knowledge of the technical concepts of governance and public policy. Knowledge is required for supervising local government finances, and in particular, knowledge about budgeting. Most previous studies have found that the knowledge of members of the House about the budget affect the regional financial supervision (Sopanah, 2003; Werimon, 2003; Coryanata, 2007; Winarna, 2007; Basri, 2007). One contrary finding is that of Murni and Witono (2004).

There are differences in abilities to read and analyze performance reports. Some decision makers in government had a lot of experience and understanding of the performance reports, while some others did not. Knowledgeable decision makers will be more aware of important parts of the performance report in making their decisions, and they will understand it well. On the other hand, some decision makers will not really understand the performance reports due to lack of experience and knowledge.

Performance reports produced by government organizations typically contain both common and unique performance measures of a unit. For example, from hospitals, the House receives both financial and nonfinancial performance reports, each containing common and unique measures. Decision makers pay attention to these performance measures and then conclude whether a unit's performance is good or bad. This research concerns how decision makers use both common and unique performance measures.

Previous studies (for example, Libby, et.al., 2004; Gagne, et.al., 2006) have found that decision makers who have experience with performance reports and their common and unique performance measures, use both types of measures but they give more emphasis to the unique measures than the common ones. This is because of the

knowledge possessed by the decision makers about the unique measures and the characteristics of the business unit. This findings leads to the second hypothesis:

*H2: Decision makers who are knowledgeable about performance measurement will use the measurements which are both common and unique when compiling the budget allocation plan for the coming year.*

## **Research Method**

### **Experiment Planning, Subjects and Design**

This study used a 2 x 2 factorial design with one factor type of information (common or unique) and one factor for knowledge (knowledge is given or knowledge is not given). Within-subject design compares the effects of different treatments on different subjects. This method was selected because it is able to test the interaction effect of independent variables on the dependent variable and it avoids a demand effect, in which the subjects know the direction of the treatment given (Campbell and Stanley, 1966).

The 70 subjects in the study were students in a third year undergraduate accounting class. The students are proxies for members of the House or Representatives making the decisions related to performance measurement and the budget allocation plan. Participants were divided into four groups according to whether or not they were given training on unique measurements of hospital performance and whether they were given only common performance information or both common and unique performance measures.

**Table 1 Experimental Groups**

	Knowledgeable	Unknowledgeable
Common measures	Group A1	Group B2
Both common and unique measures	Group A2	Group B1

### **The research instrument**

The case was based on those used in Lipe and Salterio (2000) and Dilla and Steinbart (2005), a hospital adapted to the context of a public sector organization and the conditions in Indonesia. It was written in Indonesian but some measures were in English. A medical specialist in hospital management and a director of the hospital reviewed the research instrument.

### **Experimental procedure**

The experimental procedure was developed from Dilla and Steinbart (2005). The experiment in this research had four phases, namely, the pilot test, the core experiment, manipulation checks, and testing (demographic and experimental results).

The first phase, the pilot test, aimed to gain confidence that the research instrument had no problems and had good internal validity. Preliminary testing was conducted with post-graduate students as the subjects (students from the Accounting Study Program, the Master in Economics and the Master of Management). Those participants were considered to have a relatively good knowledge about decision making within organizations taking into consideration financial and nonfinancial factors.

The second stage was the implementation of the core experiments. The subjects were divided into four different groups. Groups A1 and A2 were given brief training on

common and unique performance measurement for an hour. This short course contained the following materials:

1. An explanation and definition of performance, performance measurement and why performance should be measured. This section took approximately 15 minutes.
2. An explanation and definition of budget allocation and the budget allocation process. This section took approximately 15 minutes.
3. Brief instruction on how to read and to interpret financial statements of a fictitious local public hospital which contain some financial and nonfinancial information, common and unique measurements for both, as well as explaining the importance of measurements that are unique in the assessment of performance. This section took about 30 minutes.
4. The participants were given about 10 minutes to think about and absorb the information from the training session. Then they proceeded to the experiment itself.

Groups B1 and B2, the “unknowledgeable” groups did not receive the brief training. The experiment was conducted with the four groups at different times, to avoid the effect of interaction and learning effects between subjects that could have biased the experiment results.

Participants were given budget reports for Hospital 1 or Hospital 2. Hospital A’s report comprised budget and actual figures for revenue and expenditure (common information). Hospital B’s reports comprised both common information as for hospital A, plus unique information, namely performance ratios for Bed Occupancy Rate (BOR), Length of Stay (LOS) and Bed Turn Over (BTO).

Subjects in each group were asked to read and to review the information related to the performance of either Hospital 1 or Hospital 2 (group A and group B) respectively, and then provide an assessment of hospital performance and propose the budget allocation for the coming year. Hospital performance was assessed on a scale from "Did not meet budget", through "Met budget", to "Above budget". Assessment of the hospital performance was the basis for a decision to raise or not raise the hospital budget for the next year. Subjects were given a maximum of 30 minutes to provide a decision on the hospital's budget allocation.

In the third stage, a manipulation check was conducted to find out, firstly, whether the subjects understood the forms given to them, and secondly, whether subjects understood the tasks given to them based on the instructions given. The manipulation check was in the form of a short questionnaire containing ten questions.<sup>5</sup>

The fourth stage obtained demographic and other data about the subjects (see table 2 for gender distribution, which does not differ markedly between the groups who had training and those that did not).

**Table 2 Description of Subjects by Gender**

Gender	<i>Group</i>		<i>Total</i>
	<i>Knowledgeable</i>	<i>Unknowledgeable</i>	
Male	12	9	21
Female	22	27	49
Total	34	36	70

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<sup>5</sup> A copy of the cases and questionnaires used in the experiment are available from the first author on request

## Hypothesis testing

To test the first hypothesis (H1), participants' perceptions of performance of the hospitals were compared between the groups who had training and those who did not. Groups who had the knowledge (A1 and A2) were expected to provide a different assessment of the performance of the hospitals than those who did not get the knowledge, using a t-test of means of two independent samples.

To test the second hypothesis (H2), a t-test was performed comparing the mean of participants' decisions on budget allocations. Groups who had training were expected to make different decisions on whether or not to increase the budget for the next year than those who did not get the training.

Table 3 provides the results of the t-test for the first hypothesis (H1), comparing the mean of participants in assessing the performance measurement of hospitals in treatment and control groups. Groups who had received training, the knowledgeable, gave different performance assessments than those who did not get the knowledge and this difference was statistically significant (p-value 0.000).

**Table 3. Means for Performance Assessment**

	Knowledgeable (n = 34)	Unknowledgeable (n = 36)	p-value for t-test
Common information	6.5882	7.1667	0.000
Common and unique information	5.3235	6.6944	0.000

The test results in Table 3 showed that the first hypothesis (H1) in this study is supported and statistically significant ( $p < 0.000$ ).

Table 4 provides the results of the t-test for the second hypothesis (H2) comparing the mean of participants' decisions on budget allocations. Groups who have knowledge

will result a different decisions than those who do not have the knowledge, and this difference was statistically significantly tested ( $p < 0.000$ ).

**Table 4. Means for Budget Allocation Decisions**

	Knowledgeable (n = 34)	Unknowledgeable (n = 36)	p-value for t-test
Common information	16.1765	30.0556	0.000
Common and unique information	16.7647	28.0556	0.000

## Discussion

Consistent with the research conducted by Lipe and Salterio (2000) and Dilla and Steinbart (2005), the results of the testing of the first hypothesis (H1) show that the group which was given the knowledge through the training session provided a different assessment of the hospital performance measurement than those in which the knowledge was not given. In other words, the first hypothesis (H1) is statistically supported. This condition is indicated by the mean rating for performance of 5.3235 (Table 3) by the group which was given the knowledge and had access to both common and unique performance measures. The group which was not given the training rated the performance higher, at 6.6944, even though they had information on unique performance measures that indicated that the hospital had not met its targets for those measures. That is, the group which was given the knowledge correctly assessed the hospital performance as lower than the group which was not given the knowledge.

The group which did not receive training tended to use the common information, in this case the Actual versus Budget Report, and to ignore the unique information in assessing the hospital's performance. These findings support the research conducted by Lipe and Salterio (2000) who found that decision makers with limited knowledge ignore



the measures that show the specific strategy of the business unit and only evaluate performance on common measures.

Similarly, the results of the test of the second hypothesis (H2) are consistent with the findings of Lipe and Salterio (2000) and Dilla and Steinbart (2005) in which the group which was given the knowledge made different decisions about whether or not to increase the budget allocation (mean 16.7647) than those who did not get the knowledge (mean 28.0556). That is, H2 is statistically supported. These conditions illustrate that the group which was given the knowledge will consider both common and unique information as a basis for decisions making about the allocation of hospital budgets for the upcoming financial year. Having correctly identified that performance was not as good as it appeared to be from looking just at the common measures, group A2 decided to make a smaller budget allocation for the next year. Even though group B1 had the unique measures, they did not understand their significance, and therefore made their decision based on the good performance indicated in the common measures, and therefore allocated more money in the next year's budget. The results of this study support the findings of Lipe and Salterio (2000) which was further developed by Dilla and Steinbart (2005).

## **Conclusion**

The results of the tests of both hypotheses are consistent with previous research, finding that knowledgeable decision makers will assess performance differently and take both common and unique measurements into consideration, whereas unknowledgeable decision makers tend to only use common measures.

Although previous researchers have used students as proxies for professionals (see, for example, Mortensen et.al., 2012), further research could use actual members of the House in the same experiment, and compare results.

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